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MT Dept. Environmental Quality
Permitting & Compliance Division
Air Resources Management Bureau

**Columbia Falls Maintenance Plan
September 2006 Maintenance Event**

1. Identification of specific air pollution control equipment to be maintained

CFAC's east dry alumina scrubber has a Model 266 Dual Blade Slide Gate Dampers (Guillotine Damper) that control the gas stream entrance to the 6 (six) Reactors in the East Plant Dry Scrubber system. The slide gates require removal for cleaning and maintenance. The seal blades will be replaced and/or adjusted as required to permit a positive seal when the slide gate is closed and entrance is made to the Reactor. The damper and transition duct on Fan Towers No. 26, 28 and 29 will be removed and replaced. An air slide section that enters the return lift pot will be removed and a Siemens/Milltronics flowmeter will be installed.

2. Explanation of Need:

The dual blade slide gates do not form a positive seal when maintenance is required in the reactors. Maintenance cannot be performed on the dual blade slide gates without a shutdown of the scrubbing system. CFAC requests approval from MDEQ to shutdown the east dry alumina scrubber for four (4) hours per day, for five (5) days, in order to remove, repair and/or replace these dual blade slide gates. Included in the four (4) hour scrubber downtime, during two of the maintenance days, are the removal and replacement of dampers and transition ducts on Fan Towers No. 26, 28, and 29. A 4 hour outage is also requested for the removal of a section of air slide on the return lift pot and installation of a Siemens/Milltronics Flowmeter to allow CFAC operators to better control the east dry scrubbing system..

An alternative to shutting down the east dry alumina scrubber to perform maintenance as described above is to completely shutdown Potline 5, perform the required maintenance work, and then restart Potline 5. This alternative would cause extreme hardship to both CFAC and the environment for the following reasons:

- As described in Table 1, fluoride emissions from shutting down Potline 5, performing the required maintenance work, and restarting the potline are estimated to be 25 tons. Performing the maintenance as proposed while shutting down the scrubbing system for five, four-hour periods, and continuing to operate the potline, results in fluoride emissions of 1.9 tons, which is significantly less.
- Shutdown and restart of Potline 5 would create a massive operational hardship for CFAC by totally disrupting aluminum production schedules and potentially placing CFAC in default with customer contracts. Aluminum smelters are not easily restarted and it often takes six months

after restart before processes within the reduction cells stabilize and aluminum is reliably produced. If CFAC's Potline 5 is shut down, raw material shipments, and particularly alumina, would require re-scheduling and/or storage until the plant restarted and was stabilized in operation. Alumina is received by CFAC through a combination of rail and sea transportation. CFAC's alumina currently comes from Jamaica and scheduling of shipments is a complicated task.

- Shutdown and restart of the potline would create a severe financial hardship for CFAC. CFAC currently operates one potline and it is estimated to cost approximately \$1.5 million to start up a shutdown potline.

For the above stated reasons, the shutdown and restart of the facility does not yield any public health or safety benefits, and actually causes more emissions to the environment.

3. Description and quantity of air contaminants

During the five four-hour maintenance periods, the east dry scrubber will be shut down. Pot gases, containing gaseous fluoride, particulate fluoride, POM, and PM10 will be emitted from the potrooms. Fluoride emissions estimates during the maintenance event are presented in the lower part of Table 1. Table 2 presents estimates of 24-hour Potline #5 PM-10 emissions during normal operations and during the proposed maintenance event. It is estimated that the 24-hour PM-10 emissions during the day of maintenance will exceed normal 24-hour, daily PM-10 emissions by 656.8 pounds.

4. Description of specific procedures to minimize length of maintenance period

The following activities will be done to minimize the length of each maintenance period:

The dual blade slide gate will be removed / repaired and installed during subsequent shut down of the dry alumina scrubber.

All equipment (Genie Manlift S65, 17 Ton Boom Truck, etc) and manpower will be staged in place and will be ready for removal and installation of the dual blade slide gate.

Every-other-bolt on the flange of the existing dual blade slide gate will be removed prior to shutting down the dry alumina scrubber to minimize the scrubber down time. Remaining bolts will be removed after the scrubber is shut down.

All equipment for the replacement of the dampers and transition ducts on Fan towers No. 26, 28 and 29 would be fabricated and positioned for quick installation.

5. Description of specific procedures to minimize uncontrolled PM-10 emissions

During the 4-hour maintenance period, CFAC will curtail the following operations that have the potential to cause PM-10 emissions:

CFAC will not conduct reduction cell tapping during the maintenance period

CFAC will not conduct pin pulling activities during the maintenance period

CFAC will not rake reduction cells during the maintenance period

CFAC will not tap cryolite bath during the maintenance period

6. Citation of permit requirements that might not be complied with during maintenance event

The following permit requirements may not be complied with during the maintenance event:

Rule Citation	Description
17.8.,302	Incorporation by Reference
17.8.304	Visible Air Contaminants
17.8.308	Particulate Matter, Airborne
17.8.111	Circumvention
17.8.715 (2)	Emission Control Requirements
17.8.1404	Visible Air Contaminants
17.8.331	Emission Standard for Existing Aluminum Plants – Fluoride Emissions
17.8.332	Emission Standard for Existing Aluminum Plants – Visible Emissions
17.8.342	Emission Standards for Hazardous Air Pollutants for Source Categories

7. Expected date of maintenance events

The maintenance event will take place beginning at 9:00 am on Tuesday September 12, 2006 for:

- Reactor No. 5: Removal of dual blade slide gate
- Reactor No. 6: Removal of dual blade slide gate

- Fan Tower 28: Removal and replacement of dampers and transition duct work
- Tower 29: Removal and replacement of dampers and transition duct work

The maintenance event will take place beginning at 9:00 am on Thursday September 14, 2006 for:

- Reactor No. 10: Removal and replacement of dual blade slide gate
- Fan Tower 26: Removal and replacement of dampers and transition duct work
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The maintenance event will take place beginning at 9:00 am on Tuesday September 19, 2006 for:

- Reactor No. 5: Installation of dual blade slide gate
- Reactor No. 9: Removal of dual blade slide gate

The maintenance event will take place beginning at 9:00 am on Thursday September 21, 2006 for:

- Reactor No. 6: Installation of dual blade slide gate
- Reactor No. 9: Installation of dual blade slide gate

The maintenance event will take place beginning at 9:00 am on Thursday September 28, 2006 for:

- Remove air slide section that enters return lift pot; Install a Siemens/Milltronics flowmeter

Public Notice

On September 12, 14, 19, 21, and 28, 2006, Columbia Falls Aluminum Company (CFAC) will conduct maintenance on the facility's primary air pollution control system. Specifically, CFAC will remove and replace dual blade slide gates on dry scrubber reactors, remove and replace dampers and ductwork on fan towers, and install a flowmeter. Each day's maintenance activity will require the primary air pollution control system to be shutdown for a period of four hours per day. This maintenance work is being conducted under the provisions of Administrative Rule of Montana 17.8.335. A description of this project is on file with Montana Department of Environmental Quality. In addition, a description of the project may be viewed at Columbia Falls Aluminum Company's facility at 2000 Aluminum Drive, Columbia Falls, MT. Please call 406-892-8211 to make an appointment to view the documents. Interested persons may obtain more information by calling Mr. Bob Gallagher of Montana Department of Environmental Quality at 406-444-4114. Public comment concerning this project may be submitted to Mr. Bob Gallagher, Air Quality Specialist, Permitting & Compliance Division, Montana Department of Environmental Quality, P.O. Box 200901, Helena, MT 59620-0901. Public comment may also be faxed to Mr. Gallagher at 406-444-1499.

To be guaranteed full consideration, public comments must be received by Montana Department of Environmental Quality within 20 days of publication of this notice.

**Table 1: CFAC 2006 Maintenance Projects
Emissions Estimate**

Potline Restart Emissions Estimate ¹							
Potline Restart Time	Fluoride Emission Factor	Units	Emission Factor Reference	Aluminum Production ton/hr	Hours per Month	Emissions During Restart	
						lbs/month	tons/month
Restart Month 1 (20 days)	25.6	lbs F/ton aluminum	2002 Restart of Potline 4	1.2	480	14,746	7.4
Restart Month 2	3.2	lbs F/ton aluminum	2002 Restart of Potline 4	4.05	720	9,331	4.7
Restart Month 3	4.8	lbs F/ton aluminum	2002 Restart of Potline 4	4.11	744	14,678	7.3
Restart Month 4	3.7	lbs F/ton aluminum	2002 Restart of Potline 4	4.13	720	11,002	5.5
Total							25

¹ This estimate is based on the restart experience of potline 4 for the year 2002. Potline 4 was restarted on March 11, 2002 and did not meet the 2.6 lb F/ton aluminum emission standard until the 5th month of operation. The above estimate is based on the restart emissions for the first four months of restart.

Emissions During Maintenance Estimate							
Pollutant	Uncontrolled Emission Factor	Units	Emission Factor Reference	Aluminum Production ton/hr	Duration of Maintenance Hrs ²	Emissions During Maintenance	
						lbs	tons
Gaseous Fluoride	33	lb F/ton aluminum	Table 12.1-1, Compilation of Emission Factors, AP-42	4.3	20	2,838	1.4
Particulate Fluoride	11	lb F/ton aluminum	Table 12.1-1, Compilation of Emission Factors, AP-42	4.3	20	946	0.5
Total Fluoride							1.9

² Total hours for five events at 4 hours downtime per event

Table 2
CFAC Primary System Maintenance Projects
Scheduled for September 2006
PM-10 Emissions Estimate

Emission Source	Aluminum Production ton/hr	PM10 Emission Factor ¹ lb PM10/ton aluminum	PM10 Uncontrolled Emissions lb/hr	Scrubber/Baghouse Collection Efficiency %	Controlled PM10 Emission Rate lb/hr	Number of hours	PM10 Emissions lb/day
Potline #5 - Normal Emissions							
Primary Emissions	4.3	38.3	164.7	99.70%	0.5	24	11.9
Secondary Roof Emissions	4.3	3.7	15.9	0.00%	15.9	24	381.8
Total Emissions							393.7
Potline # 5 -Daily Maintenance Event Emissions ²							
Primary Emissions- Uncontrolled	4.3	38.3	164.7	0.00%	164.7	4	658.8
Primary Emissions- Controlled	4.3	38.3	164.7	99.70%	0.5	20	9.9
Secondary Roof Emissions	4.3	3.7	15.9	0.00%	15.9	24	381.8
Total Emissions per maintenance event							1050.5
Difference of Maintenance Event Emissions and Normal Emissions							656.8

¹ PM10 emission factor is based on agreement between Bison Engineering, CFAC and MDEQ
Emission factor calculated by Bison and confirmed by MDEQ (Bison Memo to MDEQ dated 9/11/00, and Memo from MDEQ dated September 15, 2000).

² This is an emission estimate for an individual 4-hour maintenance event